



SEQUENCE LISTING

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Newton, Benjamin B.  
Taylor, William J.A.

<120> Method For Accelerating The Rate Of Mucociliary Clearance

<130> 98-736-A

<140> US 09/441,966

<141> 1999-11-17

<150> US 09/218,913

<151> 1998-12-22

<160> 106

<170> PatentIn version 3.1

<210> 1

<211> 179

<212> PRT

<213> Homo sapiens

<400> 1

Ala Asp Arg Glu Arg Ser Ile His Asp Phe Cys Leu Val Ser Lys Val  
1 5 10 15

Val Gly Arg Cys Arg Ala Ser Met Pro Arg Trp Trp Tyr Asn Val Thr  
20 25 30

Asp Gly Ser Cys Gln Leu Phe Val Tyr Gly Gly Cys Asp Gly Asn Ser  
35 40 45

Asn Asn Tyr Leu Thr Lys Glu Glu Cys Leu Lys Lys Cys Ala Thr Val  
50 55 60

Thr Glu Asn Ala Thr Gly Asp Leu Ala Thr Ser Arg Asn Ala Ala Asp  
65 70 75 80

Ser Ser Val Pro Ser Ala Pro Arg Arg Gln Asp Ser Glu Asp His Ser  
85 90 95

Ser Asp Met Phe Asn Tyr Glu Glu Tyr Cys Thr Ala Asn Ala Val Thr  
100 105 110

Gly Pro Cys Arg Ala Ser Phe Pro Arg Trp Tyr Phe Asp Val Glu Arg

115

120

125

Asn Ser Cys Asn Asn Phe Ile Tyr Gly Gly Cys Arg Gly Asn Lys Asn  
 130 135 140

Ser Tyr Arg Ser Glu Glu Ala Cys Met Leu Arg Cys Phe Arg Gln Gln  
 145 150 155 160

Glu Asn Pro Pro Leu Pro Leu Gly Ser Lys Val Val Val Leu Ala Gly  
 165 170 175

Ala Val Ser

B6 <210> 2  
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 <213> Homo sapiens

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 <222> (1)..(18)  
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Ala Gly Ser Phe Leu Ala Trp Leu Gly Ser Leu Leu Leu Ser Gly Val  
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Leu Ala Ala Asp Arg Glu Arg Ser Ile His Asp Phe Cys Leu Val Ser  
 20 25 30

Lys Val Val Gly Arg Cys Arg Ala Ser Met Pro Arg Trp Trp Tyr Asn  
 35 40 45

Val Thr Asp Gly Ser Cys Gln Leu Phe Val Tyr Gly Gly Cys Asp Gly  
 50 55 60

Asn Ser Asn Asn Tyr Leu Thr Lys Glu Glu Cys Leu Lys Lys Cys Ala  
 65 70 75 80

Thr Val Thr Glu Asn Ala Thr Gly Asp Leu Ala Thr Ser Arg Asn Ala  
 85 90 95

Ala Asp Ser Ser Val Pro Ser Ala Pro Arg Arg Gln Asp Ser Glu Asp

100

105

110

His Ser Ser Asp Met Phe Asn Tyr Glu Glu Tyr Cys Thr Ala Asn Ala  
 115 120 125

Val Thr Gly Pro Cys Arg Ala Ser Phe Pro Arg Trp Tyr Phe Asp Val  
 130 135 140

Glu Arg Asn Ser Cys Asn Asn Phe Ile Tyr Gly Gly Cys Arg Gly Asn  
 145 150 155 160

Lys Asn Ser Tyr Arg Ser Glu Glu Ala Cys Met Leu Arg Cys Phe Arg  
 165 170 175

Gln Gln Glu Asn Pro Pro Leu Pro Leu Gly Ser Lys Val Val Val Leu  
 180 185 190

Ala Gly Ala Val Ser  
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<210> 3  
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 <213> Homo sapiens

<400> 3

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Ser Met Pro Arg Trp Trp Tyr Asn Val Thr Asp Gly Ser Cys Gln Leu  
 20 25 30

Phe Val Tyr Gly Gly Cys Asp Gly Asn Ser Asn Asn Tyr Leu Thr Lys  
 35 40 45

Glu Glu Cys Leu Lys Lys Cys Ala Thr Val Thr Glu Asn Ala Thr Gly  
 50 55 60

Asp Leu Ala Thr Ser Arg Asn Ala Ala Asp Ser Ser Val Pro Ser Ala  
 65 70 75 80

Pro Arg Arg Gln Asp Ser Glu Asp His Ser Ser Asp Met Phe Asn Tyr  
 85 90 95

Glu Glu Tyr Cys Thr Ala Asn Ala Val Thr Gly Pro Cys Arg Ala Ser  
 100 105 110

Phe Pro Arg Trp Tyr Phe Asp Val Glu Arg Asn Ser Cys Asn Asn Phe  
 115 120 125

Ile Tyr Gly Gly Cys Arg Gly Asn Lys Asn Ser Tyr Arg Ser Glu Glu  
 130 135 140

Ala Cys Met Leu Arg Cys Phe Arg Gln  
 145 150

B6  
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 <211> 58  
 <212> PRT  
 <213> Homo sapiens

<400> 4

Ile His Asp Phe Cys Leu Val Ser Lys Val Val Gly Arg Cys Arg Ala  
 1 5 10 15

Ser Met Pro Arg Trp Trp Tyr Asn Val Thr Asp Gly Ser Cys Gln Leu  
 20 25 30

Phe Val Tyr Gly Gly Cys Asp Gly Asn Ser Asn Asn Tyr Leu Thr Lys  
 35 40 45

Glu Glu Cys Leu Lys Lys Cys Ala Thr Val  
 50 55

<210> 5  
 <211> 51  
 <212> PRT  
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<400> 5

Cys Leu Val Ser Lys Val Val Gly Arg Cys Arg Ala Ser Met Pro Arg  
 1 5 10 15

Trp Trp Tyr Asn Val Thr Asp Gly Ser Cys Gln Leu Phe Val Tyr Gly  
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Gly Cys Asp Gly Asn Ser Asn Asn Tyr Leu Thr Lys Glu Glu Cys Leu  
 35 40 45

Lys Lys Cys  
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<212> PRT  
<213> Homo sapiens

<400> 6

Tyr Glu Glu Tyr Cys Thr Ala Asn Ala Val Thr Gly Pro Cys Arg Ala  
1 5 10 15

Ser Phe Pro Arg Trp Tyr Phe Asp Val Glu Arg Asn Ser Cys Asn Asn  
20 25 30

Phe Ile Tyr Gly Gly Cys Arg Gly Asn Lys Asn Ser Tyr Arg Ser Glu  
35 40 45

Glu Ala Cys Met Leu Arg Cys Phe Arg Gln  
50 55

<210> 7  
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<212> PRT  
<213> Homo sapiens

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Cys Thr Ala Asn Ala Val Thr Gly Pro Cys Arg Ala Ser Phe Pro Arg  
1 5 10 15

Trp Tyr Phe Asp Val Glu Arg Asn Ser Cys Asn Asn Phe Ile Tyr Gly  
20 25 30

Gly Cys Arg Gly Asn Lys Asn Ser Tyr Arg Ser Glu Glu Ala Cys Met  
35 40 45

Leu Arg Cys  
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<210> 8  
<211> 92  
<212> PRT  
<213> Homo sapiens

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Ala Asp Arg Glu Arg Ser Ile His Asp Phe Cys Leu Val Ser Lys Val  
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Val Gly Arg Cys Arg Ala Ser Met Pro Arg Trp Trp Tyr Asn Val Thr  
20 25 30

Asp Gly Ser Cys Gln Leu Phe Val Tyr Gly Gly Cys Asp Gly Asn Ser  
35 40 45

Asn Asn Tyr Leu Thr Lys Glu Glu Cys Leu Lys Lys Cys Ala Thr Val  
50 55 60

Thr Glu Asn Ala Thr Gly Asp Leu Ala Thr Ser Arg Asn Ala Ala Asp  
65 70 75 80

Ser Ser Val Pro Ser Ala Pro Arg Arg Gln Asp Ser  
85 90

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<211> 708

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<213> Artificial Sequence

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<223> Consensus DNA sequence of human Bikunin (Fig. 3).

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<223> "n" is any nucleotide.

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<222> (679)..(679)

<223> "n" is any nucleotide.

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<222> (707)..(707)

<223> "n" is any nucleotide.

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ccgagaacgc agcatccacg acttctgcct ggtgtcgaag gtggtgggca gatgccgggc 120

ctccatgcct aggtgggtggt acaatgtcac tgacggatcc tgccagctgt ttgtgtatgg 180  
 gggctgtgac ggaaacagca ataattacct gaccaaggag gaggcctca agaaatgtgc 240  
 cactgtcaca gagaatgcca cgggtgacct ggccaccagc aggaatgcag cggattcctc 300  
 tgtcccaagt gctcccagaa ggcaggattc tgaagaccac tccagcgata tgttcaacta 360  
 tgaagaatac tgcaccgcca acgcagtcac tgggccttgc cgtgcatcct tcccacgctg 420  
 gtactttgac gtggagagga actcctgcaa taacttcac tatggaggct gccggggcaa 480  
 taagaacagc taccgctctg aggaggcctg catgctccgc tgcttccgcc agcaggagaa 540  
 tctccccctg ccccttggct caaagggtggt ggttctggcc ggggctgttt cgtgatgggtg 600  
 ttgatecttt tcttggggag cntccatggt cttactgatt ccgggtggca aggaggaacc 660  
 aggagcgtgc cctgcgganc gtctggagct tcggagatga caagggnt 708

<210> 10  
 <211> 197  
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<220>  
 <223> Amino acids -18 to 179 of the translation of the consensus DNA sequence in Fig. 3.

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Ala Gly Ser Phe Leu Ala Trp Leu Gly Ser Leu Leu Leu Ser Gly Val  
 1 5 10 15

Leu Ala Ala Asp Arg Glu Arg Ser Ile His Asp Phe Cys Leu Val Ser  
 20 25 30

Lys Val Val Gly Arg Cys Arg Ala Ser Met Pro Arg Trp Trp Tyr Asn  
 35 40 45

Val Thr Asp Gly Ser Cys Gln Leu Phe Val Tyr Gly Gly Cys Asp Gly  
 50 55 60

Asn Ser Asn Asn Tyr Leu Thr Lys Glu Glu Cys Leu Lys Lys Cys Ala  
 65 70 75 80

Thr Val Thr Glu Asn Ala Thr Gly Asp Leu Ala Thr Ser Arg Asn Ala  
 85 90 95

Ala Asp Ser Ser Val Pro Ser Ala Pro Arg Arg Gln Asp Ser Glu Asp

100

105

110

His Ser Ser Asp Met Phe Asn Tyr Glu Glu Tyr Cys Thr Ala Asn Ala  
 115 120 125

Val Thr Gly Pro Cys Arg Ala Ser Phe Pro Arg Trp Tyr Phe Asp Val  
 130 135 140

Glu Arg Asn Ser Cys Asn Asn Phe Ile Tyr Gly Gly Cys Arg Gly Asn  
 145 150 155 160

Lys Asn Ser Tyr Arg Ser Glu Glu Ala Cys Met Leu Arg Cys Phe Arg  
 165 170 175

Gln Gln Glu Asn Pro Pro Leu Pro Leu Gly Ser Lys Val Val Val Leu  
 180 185 190

Ala Gly Ala Val Ser  
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<210> 11  
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 <223> Variants of human Bikunin.

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 <222> (17)..(17)  
 <223> Each "Xaa" independently represents a naturally occurring amino acid residue except Cys, with the proviso that at least one "Xaa" in SEQ ID NO:11 is different from the corresponding amino acid residue of the native sequence.

<220>  
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acid residue except Cys, with the proviso that at least one "Xaa" in SEQ ID NO:11 is different from the corresponding amino acid residue of the native sequence.

<220>  
<221> MISC\_FEATURE  
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<220>  
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<223> Each "Xaa" independently represents a naturally occurring amino acid residue except Cys, with the proviso that at least one "Xaa" in SEQ ID NO:11 is different from the corresponding amino acid residue of the native sequence.

<220>  
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<220>  
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<220>  
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<223> Each "Xaa" independently represents a naturally occurring amino acid residue except Cys, with the proviso that at least one "Xaa" in SEQ ID NO:11 is different from the corresponding amino acid residue of the native sequence.

<220>  
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<220>  
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<222> (112)..(112)  
<223> Each "Xaa" independently represents a naturally occurring amino acid residue except Cys, with the proviso that at least one "Xaa" in SEQ ID NO:11 is different from the corresponding amino acid residue of the native sequence.

Bb

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<220>  
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<220>  
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B6

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 <223> Each "Xaa" independently represents a naturally occurring amino acid residue except Cys, with the proviso that at least one "Xaa" in SEQ ID NO:11 is different from the corresponding amino acid residue of the native sequence.

<400> 11

Ala Asp Arg Glu Arg Ser Ile Xaa Asp Phe Cys Leu Val Ser Lys Val  
 1 5 10 15

Xaa Gly Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Trp Trp Tyr Asn Val Thr  
 20 25 30

Asp Gly Ser Cys Gln Leu Phe Xaa Tyr Xaa Gly Cys Xaa Xaa Xaa Ser  
 35 40 45

Asn Asn Tyr Xaa Thr Lys Glu Cys Leu Lys Lys Cys Ala Thr Xaa  
 50 55 60

Thr Glu Asn Ala Thr Gly Asp Leu Ser Thr Ser Arg Asn Ala Ala Asp  
 65 70 75 80

Ser Ser Val Pro Ser Ala Pro Arg Arg Gln Asp Ser Glu His Asp Ser  
 85 90 95

Ser Asp Met Phe Asn Tyr Xaa Glu Tyr Cys Thr Ala Asn Ala Val Xaa  
 100 105 110

Gly Xaa Cys Xaa Xaa Xaa Xaa Xaa Xaa Trp Tyr Phe Asp Val Glu Arg

115

120

125

Asn Ser Cys Asn Asn Phe Xaa Tyr Xaa Gly Cys Xaa Xaa Xaa Lys Asn  
 130 135 140

Ser Tyr Xaa Ser Glu Glu Ala Cys Met Leu Arg Cys Phe Arg Xaa Gln  
 145 150 155 160

Glu Asn Pro Pro Leu Pro Leu Gly Ser Lys Val Val Val Leu Ala Gly  
 165 170 175

Ala Val Ser

B6  
 <210> 12  
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 <213> Homo sapiens

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 accgagaacg cagcatccac gacttctgcc tgggtgtcgaa ggtgggtgggc agattccggg 120  
 cctccatgcc taggtggtgg tacaatgtca ctgacgggac ctgccagctg tttgtgtatg 180  
 ggggctgtga cgaaacagc aataattacc tgaccaagga ggagtgcctc aagaaatgtg 240

ccactgtcac agagaatgcc acgggtgacc tggccaccag caggaatgca gcggattcct 300  
 ctgtcccaag tgctcccaga aggcaggatt cttgaagacc acttcagcga tatgtttcaa 360  
 ntattgnaag aataattgca ccgnaacgn att 393

<210> 13  
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 <212> PRT  
 <213> Homo sapiens

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<400> 13

Bb

Pro Gly Arg Phe Ser Pro Gly Trp Asp Arg Cys Ser Ser Leu Gly Ser  
 1 5 10 15

Trp Pro Ala Asp Arg Glu Arg Ser Ile His Asp Phe Cys Leu Val Ser  
 20 25 30

Lys Val Val Gly Arg Phe Arg Ala Ser Met Pro Arg Trp Trp Tyr Asn  
 35 40 45

Val Thr Asp Gly Ser Cys Gln Leu Phe Val Tyr Gly Gly Cys Asp Gly  
 50 55 60

Asn Ser Asn Asn Tyr Leu Thr Lys Glu Glu Cys Leu Lys Lys Cys Ala  
 65 70 75 80

Thr Val Thr Glu Asn Ala Thr Gly Asp Leu Ala Thr Ser Arg Asn Ala  
 85 90 95

Ala Asp Ser Ser Val Pro Ser Ala Pro Arg Arg Gln Asp Ser  
 100 105 110

<210> 14  
 <211> 510  
 <212> DNA  
 <213> Homo sapiens

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 <222> (481)..(481)  
 <223> "n" is any nucleotide.

<220>  
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 <222> (509)..(509)  
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 aaggcaggat tctgaagacc actccagcga tatgttcaac tatgaagaat actgcaccgc 180  
 caacgcagtc actgggcctt gccgtgcatc cttcccacgc tgggtactttg acgtggagag 240  
 gaactcctgc aataacttca tctatggagg ctgccggggc aataagaaca gctaccgctc 300  
 tgaggaggcc tgcattgtcc gctgcttccg ccagcaggag aatcctcccc tgccccttgg 360  
 ctcaaagggtg gtggttcttg ccggggctgt ttcgtgatgg tgttgatcct tttcctgggg 420  
 agcntccatg gtcttactga ttccgggtgg caaggaggaa ccaggagcgt gccctgcgga 480  
 ncgtctggag cttcggagat gacaagggnt 510

<210> 15  
 <211> 20  
 <212> PRT  
 <213> Homo sapiens

<400> 15

Leu Pro Asp Gln Gly Gly Val Pro Gln Glu Met Cys His Cys His Arg  
 1 5 10 15

Glu Cys His Gly  
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<210> 16  
 <211> 427  
 <212> DNA  
 <213> Homo sapiens

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<223> "n" is any nucleotide.

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<222> (11)..(12)

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<222> (17)..(17)

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<222> (48)..(48)

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<222> (425)..(425)

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agaacgcagc atccacgact tctgcctggt gtcgaagggt gtgggcagat gccgggcctc 120

catgcctagg tgggtggtaca atgtcactga cggatcctgc cagctgtttg tgtatggggg 180

ctgtgacgga aacagcaata attacctgac caaggaggag tgcctcaaga aatgtgccac 240

tgtcacagag aatgccacgg gtgacctggc caccagcagg aatgcagcgg attcctctgt 300

cccaagtgtc ccagaaggc aggattctga agaccactcc agcgatatgt tcaactatga 360

agaatactgg caccgccaac gcattcactg ggcctgcgtg catccttccc acgctggtac 420

tttgncg 427

<210> 17

<211> 423

<212> DNA

<213> Homo sapiens

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<222> (6)..(6)

<223> "n" is any nucleotide.

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 <223> "n" is any nucleotide.

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 aatgtcactg acggatcctg ccagctgttt gtgtatgggg gctgtgacgg aaacagcaat 180  
 aattacctga ccaaggagga gtgcctcaag aaatgtgcca ctgtcacaga gaatgccacg 240  
 Bb ggtgacctgg ccaccagcag gaatgcagcg gattcctctg tcccaagtgc tcccagaagg 300  
 caggattctg aagaccactc cagcgatatg ttcaactatg aagaatactg caccgccaac 360  
 gcagtcactg ggccttgctg ggaatccttt cccacgctgg naatttngac gttgagaagg 420  
 aac 423

<210> 18  
 <211> 57  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Kunitz-like domain of tissue factor pathway inhibitor precursor 1.

<400> 18

His Ser Phe Cys Ala Phe Lys Ala Asp Asp Gly Pro Cys Lys Ala Ile  
 1 5 10 15

Met Lys Arg Phe Phe Phe Asn Ile Phe Thr Arg Gln Cys Glu Glu Phe  
 20 25 30

Ile Tyr Gly Gly Cys Glu Gly Asn Gln Asn Arg Phe Glu Ser Leu Glu  
 35 40 45

Glu Cys Lys Lys Met Cys Thr Arg Asp  
 50 55

<210> 19  
 <211> 57



<212> PRT  
<213> Unknown

<220>  
<223> Kunitz-like domain of tissue factor pathway inhibitor precursor 1.

<400> 19

Pro Asp Phe Cys Phe Leu Glu Glu Asp Pro Gly Ile Cys Arg Gly Tyr  
1 5 10 15

Ile Thr Arg Tyr Phe Tyr Asn Asn Gln Thr Lys Gln Cys Glu Arg Phe  
20 25 30

Lys Tyr Gly Gly Cys Leu Gly Asn Met Asn Asn Phe Glu Thr Leu Glu  
35 40 45

B<sub>e</sub>  
Glu Cys Lys Asn Ile Cys Glu Asp Gly  
50 55

<210> 20  
<211> 57  
<212> PRT  
<213> Unknown

<220>  
<223> Kunitz-like domain of tissue factor pathway inhibitor precursor.

<400> 20

Pro Ser Trp Cys Leu Thr Pro Ala Asp Arg Gly Leu Cys Arg Ala Asn  
1 5 10 15

Glu Asn Arg Phe Tyr Tyr Asn Ser Val Ile Gly Lys Cys Arg Pro Phe  
20 25 30

Lys Tyr Ser Gly Cys Gly Gly Asn Glu Asn Asn Phe Thr Ser Lys Gln  
35 40 45

Glu Cys Leu Arg Ala Cys Lys Lys Gly  
50 55

<210> 21  
<211> 57  
<212> PRT  
<213> Unknown

<220>  
<223> Kunitz-like domain of tissue factor pathway inhibitor precursor 2.

<400> 21

Ala Glu Ile Cys Leu Leu Pro Leu Asp Tyr Gly Pro Cys Arg Ala Leu  
1 5 10 15

Leu Leu Arg Tyr Tyr Tyr Arg Tyr Arg Thr Gln Ser Cys Arg Gln Phe  
20 25 30

Leu Tyr Gly Gly Cys Glu Gly Asn Ala Asn Asn Phe Tyr Thr Trp Glu  
35 40 45

Ala Cys Asp Asp Ala Cys Trp Arg Ile  
50 55

<210> 22

<211> 57

<212> PRT

<213> Unknown

<220>

<223> Kunitz-like domain of tissue factor pathway inhibitor precursor 2.

<400> 22

Pro Ser Phe Cys Tyr Ser Pro Lys Asp Glu Gly Leu Cys Ser Ala Asn  
1 5 10 15

Val Thr Arg Tyr Tyr Phe Asn Pro Arg Tyr Arg Thr Cys Asp Ala Phe  
20 25 30

Thr Tyr Thr Gly Cys Gly Gly Asn Asp Asn Asn Phe Val Ser Arg Glu  
35 40 45

Asp Cys Lys Arg Ala Cys Ala Lys Ala  
50 55

<210> 23

<211> 57

<212> PRT

<213> Unknown

<220>

<223> Kunitz-like domain of amyloid precursor protein homologue.

<400> 23

Lys Ala Val Cys Ser Gln Glu Ala Met Thr Gly Pro Cys Arg Ala Val  
1 5 10 15

Met Pro Arg Thr Thr Phe Asp Leu Ser Lys Gly Lys Cys Val Arg Phe  
 20 25 30

Ile Thr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Glu Ser Glu Asp  
 35 40 45

Tyr Cys Met Ala Val Cys Lys Ala Met  
 50 55

<210> 24  
 <211> 58  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Kunitz-like domain of aprotinin.

*Bb*  
 <400> 24

Arg Pro Asp Phe Cys Leu Glu Pro Pro Tyr Thr Gly Pro Cys Lys Ala  
 1 5 10 15

Arg Ile Ile Arg Tyr Phe Tyr Asn Ala Lys Ala Gly Leu Cys Gln Thr  
 20 25 30

Phe Val Tyr Gly Gly Cys Arg Ala Lys Arg Asn Asn Phe Lys Ser Ala  
 35 40 45

Glu Asp Cys Met Arg Thr Cys Gly Gly Ala  
 50 55

<210> 25  
 <211> 51  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Kunitz-like domain of inter-alpha-trypsin inhibitor precursor.

<400> 25

Cys Gln Leu Gly Tyr Ser Ala Gly Pro Cys Met Gly Met Thr Ser Arg  
 1 5 10 15

Tyr Phe Tyr Asn Gly Thr Ser Met Ala Cys Glu Thr Phe Gln Tyr Gly  
 20 25 30

Gly Cys Met Gly Asn Gly Asn Asn Phe Val Thr Glu Lys Glu Cys Leu  
 35 40 45

Gln Thr Cys  
 50

<210> 26  
 <211> 57  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Kunitz-like domain of inter-alpha-trypsin inhibitor precursor.  
 <400> 26

Val Ala Ala Cys Asn Leu Pro Ile Val Arg Gly Pro Cys Arg Ala Phe  
 1 5 10 15

Ile Gln Leu Trp Ala Phe Asp Ala Val Lys Gly Lys Cys Val Leu Phe  
 20 25 30

Pro Tyr Gly Gly Cys Gln Gly Asn Gly Asn Lys Phe Tyr Ser Glu Lys  
 35 40 45

Glu Cys Arg Glu Tyr Cys Gly Val Pro  
 50 55

<210> 27  
 <211> 57  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Kunitz-like domain of amyloid precursor protein.  
 <400> 27

Glu Val Cys Cys Ser Glu Gln Ala Glu Thr Gly Pro Cys Arg Ala Met  
 1 5 10 15

Ile Ser Arg Trp Tyr Phe Asp Val Thr Glu Gly Lys Cys Ala Pro Phe  
 20 25 30

Phe Tyr Gly Gly Cys Gly Gly Asn Arg Asn Asn Phe Asp Thr Glu Glu  
 35 40 45

Tyr Cys Met Ala Val Cys Gly Ser Ala  
50 55

<210> 28  
<211> 51  
<212> PRT  
<213> Unknown

<220>  
<223> Kunitz-like domain of collagen alpha-3(VI) precursor.

<400> 28

Cys Lys Leu Pro Lys Asp Glu Gly Thr Cys Arg Asp Phe Ile Leu Lys  
1 5 10 15

Trp Tyr Tyr Asp Pro Asn Thr Lys Ser Cys Ala Arg Phe Trp Tyr Gly  
20 25 30

B6 Gly Cys Gly Gly Asn Glu Asn Lys Phe Gly Ser Gln Lys Glu Cys Glu  
35 40 45

Lys Val Cys  
50

<210> 29  
<211> 57  
<212> PRT  
<213> Unknown

<220>  
<223> Kunitz-like domain of HKI-B9.

<400> 29

Pro Asn Val Cys Ala Phe Pro Met Glu Lys Gly Pro Cys Gln Thr Tyr  
1 5 10 15

Met Thr Arg Trp Phe Phe Asn Phe Glu Thr Gly Glu Cys Glu Leu Phe  
20 25 30

Ala Tyr Gly Gly Cys Gly Gly Asn Ser Asn Asn Phe Leu Arg Lys Glu  
35 40 45

Lys Cys Glu Lys Phe Cys Lys Phe Thr  
50 55

<210> 30

<211> 46  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> 5' sense oligonucleotide used in Example 6.  
  
 <400> 30  
 gccaaagcttg gataaaagat atgaagaata ctgcaccgcc aacgca 46  
  
 <210> 31  
 <211> 35  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> 3' antisense oligonucleotide used in Example 6.  
  
 <400> 31  
 ggggatcctc actgctggcg gaagcagcgg agcat 35  
  
 B6  
 <210> 32  
 <211> 206  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Cloned bikunin cDNA fragment in Example 6.  
  
 <400> 32  
 ccaagcttgg ataaaagata tgaagaatac tgcaccgcc aacgagtcac tgggccttgc 60  
 cgtgcatcct tcccacgctg gtactttgac gtggagagga actcctgcaa taacttcac 120  
 tatggagget gccggggcaa taagaacagc taccgctctg aggaggcctg catgctccgc 180  
 tgcttccgcc agcagtgagg atcccc 206  
  
 <210> 33  
 <211> 28  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> 3' PCR primer used to amplify EST R74593.  
  
 <400> 33  
 cgaagcttca tctccgaagc tccagacg 28  
  
 <210> 34  
 <211> 31  
 <212> DNA  
 <213> Artificial Sequence

<220>  
<223> 5' PCR primer used to amplify EST R74593.

<400> 34  
aggatctaga caataattac ctgaccaagg a 31

<210> 35  
<211> 36  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> 5' PCR primer used to amplify EST R35464.

<400> 35  
ggctctagagg ccgggtcgtt tctcgcttgg ctggga 36

B6

<210> 36  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> 5' PCR primer used to amplify EST R34808.

<400> 36  
cacctgatcg cgagacccc 19

<210> 37  
<211> 19  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Vector specific DNA sequencing primer (SP6).

<400> 37  
gatttaggtg acactatag 19

<210> 38  
<211> 20  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Vector specific DNA sequencing primer (T7).

<400> 38  
taatacgact cactataggg 20

<210> 39

<211> 22  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Gene specific DNA sequencing primer.  
  
 <400> 39  
 ttacctgacc aaggaggagt gc 22

<210> 40  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Gene specific DNA sequencing primer.  
  
 <400> 40  
 aatccgctgc attcctgctg gtg 23

<210> 41  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Gene specific DNA sequencing primer.  
  
 <400> 41  
 cagtcactgg gccttgccgt 20

<210> 42  
 <211> 105  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> 5' sense oligonucleotide used in Example 5.  
  
 <400> 42  
 gaaggggtaa gcttggataa aagatatgaa gaatactgca ccgccaacgc agtcactggg 60  
 ccttgccgtg catccttccc acgctggtac ttgacgtgg agagg 105

<210> 43  
 <211> 129  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> 3' antisense oligonucleotide used in Example 5.



<400> - 43  
 cgcgatccc tactggcgga agcagcggag catgcaggcc tcctcagagc ggtagctgtt 60  
 cttattgccc cggcagcctc catagatgaa gttattgcag gagttcctct ccacgtcaaa 120  
 gtaccagcg 129

<210> 44  
 <211> 207  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Cloned bikunin fragment in Example 5.

<400> 44  
 gaaggggtaa gcttggataa aagatatgaa gaatactgca ccgccaacgc agtcactggg 60  
 ccttgccgtg catccttccc acgctggtac tttgacgtgg agaggaactc ctgcaataac 120  
 ttcatctatg gaggctgccg gggcaataag aacagctacc gctctgagga ggcttgcatt 180  
 ctccgctgct tccgccagta gggatcc 207

<210> 45  
 <211> 248  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> EST derived consensus sequence of human Bikunin (Figs. 4D and 4G).

<220>  
 <221> SIGNAL  
 <222> (1) .. (23)  
 <223>

<400> 45

Met Leu Arg Ala Glu Ala Asp Gly Val Ser Arg Leu Leu Gly Ser Leu  
 1 5 10 15

Leu Leu Ser Gly Val Leu Ala Ala Asp Arg Glu Arg Ser Ile His Asp  
 20 25 30

Phe Cys Leu Val Ser Lys Val Val Gly Arg Cys Arg Ala Ser Met Pro  
 35 40 45

Arg Trp Trp Tyr Asn Val Thr Asp Gly Ser Cys Gln Leu Phe Val Tyr  
 50 55 60

Gly Gly Cys Asp Gly Asn Ser Asn Asn Tyr Leu Thr Lys Glu Glu Cys  
65 70 75 80

Leu Lys Lys Cys Ala Thr Val Thr Glu Asn Ala Thr Gly Asp Leu Ala  
85 90 95

Thr Ser Arg Asn Ala Ala Asp Ser Ser Val Pro Ser Ala Pro Arg Arg  
100 105 110

Gln Asp Ser Glu Asp His Ser Ser Asp Met Phe Asn Tyr Glu Glu Tyr  
115 120 125

Cys Thr Ala Asn Ala Val Thr Gly Pro Cys Arg Ala Ser Phe Pro Arg  
130 135 140

Trp Tyr Phe Asp Val Glu Arg Asn Ser Cys Asn Asn Phe Ile Tyr Gly  
145 150 155 160

Gly Cys Arg Gly Asn Lys Asn Ser Tyr Arg Ser Glu Glu Ala Cys Met  
165 170 175

Leu Arg Cys Phe Arg Gln Gln Glu Asn Pro Pro Leu Pro Leu Gly Ser  
180 185 190

Lys Val Val Val Leu Ala Gly Leu Phe Val Met Val Leu Ile Leu Phe  
195 200 205

Leu Gly Ala Ser Met Val Tyr Leu Ile Arg Val Ala Arg Arg Asn Gln  
210 215 220

Glu Arg Ala Leu Arg Thr Val Trp Ser Ser Gly Asp Asp Lys Glu Gln  
225 230 235 240

Leu Val Lys Asn Thr Tyr Val Leu  
245

<210> 46  
<211> 782  
<212> DNA  
<213> Homo sapiens

<400> 46  
acctgatcgc gagaccccaa cggctggtgg cgtcgctgc gcgtctcggc tgagctggcc 60

atggcgagc tgtgcgggct gaggcggagc cgggcgtttc tcgccctgct gggatcgctg 120  
ctcctctctg gggtcctggc ggccgaccga gaacgcagca tccacgactt ctgcctgggtg 180  
tcgaagggtg tgggcagatg ccgggcctcc atgcctaggt ggtggtacaa tgtcactgac 240  
ggatcctgcc agctgtttgt gtatgggggc tgtgacggaa acagcaataa ttacctgacc 300  
aaggaggagt gcctcaagaa atgtgccact gtcacagaga atgccacggg tgacctggcc 360  
accagcagga atgcagcga ttcctctgtc ccaagtgtc ccagaaggca ggattctgaa 420  
gaccactcca gcgatatgtt caactatgaa gaatactgca ccgccaacgc agtcactggg 480  
ccttgccgtg catccttccc acgctggtac tttgacgtgg agaggaactc ctgcaataac 540  
ttcatctatg gaggctgccg gggcaataag aacagctacc gctctgagga ggcctgcatg 600  
ctccgctgct tccgccagca ggagaatcct ccctgcccc ttggtcaaa ggtggtgggt 660  
ctggcggggc tgttcgtgat ggtgttgatc ctcttcctgg gagcctccat ggtctacctg 720  
atccgggtgg cacggaggaa ccaggagcgt gccctgcgca ccgtctggag cttcggagat 780  
ga 782

<210> 47  
<211> 240  
<212> PRT  
<213> Homo sapiens

<220>  
<221> SIGNAL  
<222> (1)..(27)  
<223>

<400> 47

Met Ala Gln Leu Cys Gly Leu Arg Arg Ser Arg Ala Phe Leu Ala Leu  
1 5 10 15

Leu Gly Ser Leu Leu Leu Ser Gly Val Leu Ala Ala Asp Arg Glu Arg  
20 25 30

Ser Ile His Asp Phe Cys Leu Val Ser Lys Val Val Gly Arg Cys Arg  
35 40 45

Ala Ser Met Pro Arg Trp Trp Tyr Asn Val Thr Asp Gly Ser Cys Gln  
50 55 60

Leu Phe Val Tyr Gly Gly Cys Asp Gly Asn Ser Asn Asn Tyr Leu Thr

65

70

75

80

Lys Glu Glu Cys Leu Lys Lys Cys Ala Thr Val Thr Glu Asn Ala Thr  
85 90 95

Gly Asp Leu Ala Thr Ser Arg Asn Ala Ala Asp Ser Ser Val Pro Ser  
100 105 110

Ala Pro Arg Arg Gln Asp Ser Glu Asp His Ser Ser Asp Met Phe Asn  
115 120 125

Tyr Glu Glu Tyr Cys Thr Ala Asn Ala Val Thr Gly Pro Cys Arg Ala  
130 135 140

Ser Phe Pro Arg Trp Tyr Phe Asp Val Glu Arg Asn Ser Cys Asn Asn  
145 150 155 160

Phe Ile Tyr Gly Gly Cys Arg Gly Asn Lys Asn Ser Tyr Arg Ser Glu  
165 170 175

Glu Ala Cys Met Leu Arg Cys Phe Arg Gln Gln Glu Asn Pro Pro Leu  
180 185 190

Pro Leu Gly Ser Lys Val Val Val Leu Ala Gly Leu Phe Val Met Val  
195 200 205

Leu Ile Leu Phe Leu Gly Ala Ser Met Val Tyr Leu Ile Arg Val Ala  
210 215 220

Arg Arg Asn Gln Glu Arg Ala Leu Arg Thr Val Trp Ser Phe Gly Asp  
225 230 235 240

<210> 48  
<211> 1544  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1358)..(1358)  
<223> "n" is any nucleotide.

<400> 48  
gcacgagttg ggaggtgtag cgcggctctg aacgcgctga gggccgttga gtgtcgcagg

60

cggcgagggc gcgagtgagg agcagaccca ggcatcgcg cccgagaagg ccgggcgctcc 120  
 ccacactgaa ggtccggaaa ggcgacttcc gggggctttg gcacctggcg gaccctcccc 180  
 gagcgtcggc acctgaacgc gaggcgctcc attgcgcgtg cgcgttgagg ggcttccccg 240  
 acctgatcgc gagaccccaa cggctggtgg cgtcgctgc gcgtctcggc tgagctggcc 300  
 atggcgagc tgtgcgggct gaggcggagc cgggcgtttc tcgccctgct gggatcgtg 360  
 ctctctctg gggctctggc ggccgaccga gaacgcagca tccacgactt ctgcctggtg 420  
 tcgaaggtgg tgggcagatg ccgggcctcc atgcctaggt ggtggtacaa tgtcactgac 480  
 ggatcctgcc agctgtttgt gtatgggggc tgtgacggaa acagcaataa ttacctgacc 540  
 aaggaggagt gcctcaagaa atgtgccact gtcacagaga atgccacggg tgacctggcc 600  
 accagcagga atgcagcga ttctctgtc ccaagtgtc ccagaaggca ggattctgaa 660  
 gaccactcca gcgatatgtt caactatgaa gaatactgca ccgccaacgc agtactggg 720  
 ccttgccgtg catccttccc acgctggtac tttgacgtgg agaggaactc ctgcaataac 780  
 ttcatctatg gaggctgccg gggcaataag aacagctacc gctctgagga ggcctgcatg 840  
 ctccgctgct tccgccagca ggagaatcct cccctgcccc ttggctcaa ggtggtggtt 900  
 ctggcggggc tgttcgtgat ggtgttgatc ctcttctgagg gagcctccat ggtctacctg 960  
 atccgggtgg cacggaggaa ccaggagcgt gccctgcgca ccgtctggag ctccggagat 1020  
 gacaaggagc agctggtgaa gaacacatat gtcctgtgac cgccctgtcg ccaagaggac 1080  
 tggggaaggg aggggagact atgtgtgagc tttttttaa tagagggatt gactcggatt 1140  
 tgagtgatca ttagggctga ggtctgtttc tctgggaggt aggacggctg cttcctggtc 1200  
 tggcagggat gggtttgctt tggaaatcct ctaggaggct cctcctcgca tggcctgcag 1260  
 tctggcagca gccccgagtt gtttcctcgc tgatcgattt ctttcctcca ggtagagttt 1320  
 tctttgctta tgttgaattc cattgcctcc ttttctcnat cacagaagtg atgttggaat 1380  
 cgtttctttt gtttgtctga tttatggttt ttttaagtat aaacaaaagt tttttattag 1440  
 cattctgaaa gaaggaaagt aaaatgtaca agtttaataa aaaggggcct tccccttag 1500  
 aataaatttc cagcatgttg ctttcaaaaa aaaaaaaaaa aaaa 1544

<210> 49  
 <211> 252  
 <212> PRT  
 <213> Homo sapiens

<220>

<221> SIGNAL  
 <222> (1) .. (27)  
 <223>

<400> 49

Met Ala Gln Leu Cys Gly Leu Arg Arg Ser Arg Ala Phe Leu Ala Leu  
 1 5 10 15

Leu Gly Ser Leu Leu Leu Ser Gly Val Leu Ala Ala Asp Arg Glu Arg  
 20 25 30

Ser Ile His Asp Phe Cys Leu Val Ser Lys Val Val Gly Arg Cys Arg  
 35 40 45

Ala Ser Met Pro Arg Trp Trp Tyr Asn Val Thr Asp Gly Ser Cys Gln  
 50 55 60

Leu Phe Val Tyr Gly Gly Cys Asp Gly Asn Ser Asn Asn Tyr Leu Thr  
 65 70 75 80

Lys Glu Glu Cys Leu Lys Lys Cys Ala Thr Val Thr Glu Asn Ala Thr  
 85 90 95

Gly Asp Leu Ala Thr Ser Arg Asn Ala Ala Asp Ser Ser Val Pro Ser  
 100 105 110

Ala Pro Arg Arg Gln Asp Ser Glu Asp His Ser Ser Asp Met Phe Asn  
 115 120 125

Tyr Glu Glu Tyr Cys Thr Ala Asn Ala Val Thr Gly Pro Cys Arg Ala  
 130 135 140

Ser Phe Pro Arg Trp Tyr Phe Asp Val Glu Arg Asn Ser Cys Asn Asn  
 145 150 155 160

Phe Ile Tyr Gly Gly Cys Arg Gly Asn Lys Asn Ser Tyr Arg Ser Glu  
 165 170 175

Glu Ala Cys Met Leu Arg Cys Phe Arg Gln Gln Glu Asn Pro Pro Leu  
 180 185 190

Pro Leu Gly Ser Lys Val Val Val Leu Ala Gly Leu Phe Val Met Val  
 195 200 205

B6

Leu Ile Leu Phe Leu Gly Ala Ser Met Val Tyr Leu Ile Arg Val Ala  
 210 215 220

Arg Arg Asn Gln Glu Arg Ala Leu Arg Thr Val Trp Ser Ser Gly Asp  
 225 230 235 240

Asp Lys Glu Gln Leu Val Lys Asn Thr Tyr Val Leu  
 245 250

<210> 50  
 <211> 146  
 <212> PRT  
 <213> Homo sapiens

<400> 50

B6

Cys Leu Val Ser Lys Val Val Gly Arg Cys Arg Ala Ser Met Pro Arg  
 1 5 10 15

Trp Trp Tyr Asn Val Thr Asp Gly Ser Cys Gln Leu Phe Val Tyr Gly  
 20 25 30

Gly Cys Asp Gly Asn Ser Asn Asn Tyr Leu Thr Lys Glu Glu Cys Leu  
 35 40 45

Lys Lys Cys Ala Thr Val Thr Glu Asn Ala Thr Gly Asp Leu Ala Thr  
 50 55 60

Ser Arg Asn Ala Ala Asp Ser Ser Val Pro Ser Ala Pro Arg Arg Gln  
 65 70 75 80

Asp Ser Glu Asp His Ser Ser Asp Met Phe Asn Tyr Glu Glu Tyr Cys  
 85 90 95

Thr Ala Asn Ala Val Thr Gly Pro Cys Arg Ala Ser Phe Pro Arg Trp  
 100 105 110

Tyr Phe Asp Val Glu Arg Asn Ser Cys Asn Asn Phe Ile Tyr Gly Gly  
 115 120 125

Cys Arg Gly Asn Lys Asn Ser Tyr Arg Ser Glu Glu Ala Cys Met Leu  
 130 135 140

Arg Cys  
145

<210> 51  
<211> 1530  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Consensus bikunin sequence of Fig. 4C.

<220>  
<221> misc\_feature  
<222> (46)..(46)  
<223> "n" is any nucleotide.

B6  
<220>  
<221> misc\_feature  
<222> (117)..(117)  
<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
<222> (313)..(313)  
<223> "n" is any nucleotide.

<400> 51  
gcgacctccg cgcgttggga ggtgtagcgc ggctctgaac gcgtgnaggg ccgttgagtg 60  
tcgcaggcgg cgagggcgcg agtgaggagc agaccaggc atcgcgcgcc gagaagnccg 120  
gcgtccccac actgaaggtc cggaaaggcg acttccgggg gctttggcac ctggcggacc 180  
ctcccgagc gtcggcacct gaacgcgagg cgctccattg cgcgtgcgtt tgaggggctt 240  
cccgcacctg atcgcgagac cccaacggct ggtggcgctg ctgcgcgtct cggctgagct 300  
ggccatggcg cantgttgcg ggctgaggcg gacggcgttt ctgcctgct gggatcgctg 360  
ctcctctctg gggctctggc ggccgaccga gaacgcagca tccacgactt ctgcctggtg 420  
tcgaagggtg tgggcagatg ccgggcctcc atgcctaggt ggtggtacaa tgtcactgac 480  
ggatcctgcc agctgtttgt gtatgggggc tgtgacggaa acagcaataa ttacctgacc 540  
aaggaggagt gcctcaagaa atgtgccact gtcacagaga atgccacggg tgacctggcc 600  
accagcagga atgcagcgga ttctctgtc ccaagtgtc ccagaaggca ggattctgaa 660  
gaccactcca gcgatatgtt caactatgaa gaatactgca ccgccaacgc agtcactggg 720  
ccttgccgtg catccttccc acgctggtac tttagctggg agaggaactc ctgcaataac 780



ttcatctatg gaggctgccg gggcaataag aacagctacc gctctgagga ggcctgcatg 840  
 ctccgctgct tccgccagca ggagaatcct cccctgcccc ttggctcaaa ggtggtggtt 900  
 ctggcggggc tgttcgtgat ggtgttgatc ctcttcctgg gagectccat ggtctacctg 960  
 atccgggtgg cacggaggaa ccaggagcgt gccctgcgca ccgtctggag ctccggagat 1020  
 gacaaggagc agctggtgaa gaacacatat gtcctgtgac cgcctgtcg ccaagaggac 1080  
 tggggaaggg aggggagact atgtgtgagc tttttttaa tagagggatt gactcggatt 1140  
 tgagtgatca ttagggctga ggtctgtttc tctgggaggt aggacggctg ctctcctggtc 1200  
 tggcagggat gggtttgctt tggaaatcct ctaggaggct cctcctcgca tggcctgcag 1260  
 tctggcagca gccccgagtt gtttcctcgc tgatcgattt ctttcctcca ggtagagttt 1320  
 tctttgctta tggtgaattc cattgcctct tttctcatca cagaagtgat gttggaatcg 1380  
 tttcttttgt ttgtctgatt tatggttttt ttaagtataa acaaaagttt tttattagca 1440  
 ttctgaaaga aggaaagtaa aatgtacaag ttaataaaa aggggccttc cccttagaa 1500  
 taaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1530

<210> 52  
 <211> 170  
 <212> PRT  
 <213> Homo sapiens

<400> 52

Ala Asp Arg Glu Arg Ser Ile His Asp Phe Cys Leu Val Ser Lys Val  
 1 5 10 15

Val Gly Arg Cys Arg Ala Ser Met Pro Arg Trp Trp Tyr Asn Val Thr  
 20 25 30

Asp Gly Ser Cys Gln Leu Phe Val Tyr Gly Gly Cys Asp Gly Asn Ser  
 35 40 45

Asn Asn Tyr Leu Thr Lys Glu Glu Cys Leu Lys Lys Cys Ala Thr Val  
 50 55 60

Thr Glu Asn Ala Thr Gly Asp Leu Ala Thr Ser Arg Asn Ala Ala Asp  
 65 70 75 80

Ser Ser Val Pro Ser Ala Pro Arg Arg Gln Asp Ser Glu Asp His Ser  
 85 90 95

Ser Asp Met Phe Asn Tyr Glu Glu Tyr Cys Thr Ala Asn Ala Val Thr  
 100 105 110

Gly Pro Cys Arg Ala Ser Phe Pro Arg Trp Tyr Phe Asp Val Glu Arg  
 115 120 125

Asn Ser Cys Asn Asn Phe Ile Tyr Gly Gly Cys Arg Gly Asn Lys Asn  
 130 135 140

Ser Tyr Arg Ser Glu Glu Ala Cys Met Leu Arg Cys Phe Arg Gln Gln  
 145 150 155 160

B6

Glu Asn Pro Pro Leu Pro Leu Gly Ser Lys  
 165 170

<210> 53  
 <211> 27  
 <212> PRT  
 <213> Homo sapiens

<400> 53

Met Ala Gln Leu Cys Gly Leu Arg Arg Ser Arg Ala Phe Leu Ala Leu  
 1 5 10 15

Leu Gly Ser Leu Leu Leu Ser Gly Val Leu Ala  
 20 25

<210> 54  
 <211> 23  
 <212> PRT  
 <213> Homo sapiens

<400> 54

Met Leu Arg Ala Glu Ala Asp Gly Val Ser Arg Leu Leu Gly Ser Leu  
 1 5 10 15

Leu Leu Ser Gly Val Leu Ala  
 20

<210> 55  
 <211> 102  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> 5' sense oligonucleotide used for construct #2 in Example 5.

<400> 55

gaaggggtaa gcttggataa aagagaagaa tactgtactg ctaatgctgt tactggcca 60

tgtagagctt cttttccaag atggtacttt gatgttgaaa ga 102

<210> 56

<211> 129

<212> DNA

<213> Artificial Sequence

<220>

<223> 3' antisense oligonucleotide used for construct #2 in Example 5.

<400> 56

actggatcct cattggcgaa aacatctcaa catacaggct tcttcagatc tgtaagaatt 60

tttattacct ctacaaccac cgtaaataaa attattacaa gaatttcttt caacatcaaa 120

gtaccatct 129

<210> 57

<211> 108

<212> DNA

<213> Artificial Sequence

<220>

<223> 5' sense oligonucleotide used for construct #3 in Example 5.

<400> 57

gaaggggtaa gcttggataa aagaaattac gaagaatact gtactgctaa tgctgttact 60

ggtccatgta gagcttcttt tccaagatgg tactttgatg ttgaaaga 108

<210> 58

<211> 117

<212> DNA

<213> Artificial Sequence

<220>

<223> 5' sense oligonucleotide used for construct #4 in Example 5.

<400> 58

gaaggggtaa gcttggataa aagagatatg tttaattacg aagaatactg tactgctaatt 60

gctgttactg gtccatgtag agcttctttt ccaagatggg actttgatgt tgaaaga 117

<210> 59

<211> 19

<212> DNA

<213> Artificial Sequence

<220>  
<223> Sense oligonucleotide used in PCR in Example 8.

<400> 59  
cacctgatcg cgagacccc 19

<210> 60  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Antisense oligonucleotide used in PCR in Example 8.

<400> 60  
ctggcggaag cagcggagca tgc 23

B6  
<210> 61  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide used in in vitro mutagenesis in Example 9.

<400> 61  
cgcgctctcg ctgacctggc cctgcagatg ggcacgtgt gcggg 45

<210> 62  
<211> 60  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Oligonucleotide used in in vitro mutagenesis in Example 9.

<400> 62  
ctgccccttg gctcaaagta ggaagatctt cccccgggg gggtggttct ggcggggctg 60

<210> 63  
<211> 14  
<212> PRT  
<213> Homo sapiens

<400> 63

Leu Arg Cys Phe Arg Gln Gln Glu Asn Pro Pro Pro Leu Gly  
1 5 10

<210> 64  
<211> 20  
<212> PRT

<213> Homo sapiens

<400> 64

Ala Asp Arg Glu Arg Ser Ile His Asp Phe Cys Leu Val Ser Lys Val  
1 5 10 15

Val Gly Arg Cys  
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<210> 65

<211> 20

<212> PRT

<213> Homo sapiens

B6 <400> 65

Phe Asn Tyr Glu Glu Tyr Cys Thr Ala Asn Ala Val Thr Gly Pro Cys  
1 5 10 15

Arg Ala Ser Phe  
20

<210> 66

<211> 11

<212> PRT

<213> Homo sapiens

<400> 66

Pro Arg Tyr Val Asp Gly Ser Gln Phe Tyr Gly  
1 5 10

<210> 67

<211> 55

<212> PRT

<213> Homo sapiens

<400> 67

Val Val Val Leu Ala Gly Leu Phe Val Met Val Leu Ile Leu Phe Leu  
1 5 10 15

Gly Ala Ser Met Val Tyr Leu Ile Arg Val Ala Arg Arg Asn Gln Glu  
20 25 30

Arg Ala Leu Arg Thr Val Trp Ser Ser Gly Asp Asp Lys Glu Gln Leu  
35 40 45

Val Lys Asn Thr Tyr Val Leu  
50 55

<210> 68  
<211> 43  
<212> PRT  
<213> Homo sapiens

<400> 68

Val Val Val Leu Ala Gly Leu Phe Val Met Val Leu Ile Leu Phe Leu  
1 5 10 15

Gly Ala Ser Met Val Tyr Leu Ile Arg Val Ala Arg Arg Asn Gln Glu  
20 25 30

Bb

Arg Ala Leu Arg Thr Val Trp Ser Phe Gly Asp  
35 40

<210> 69  
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<213> Homo sapiens

<400> 69

Val Val Val Leu Ala Gly Leu Phe Val Met Val Leu Ile Leu Phe Leu  
1 5 10 15

Gly Ala Ser Met Val Tyr Leu Ile Arg Val Ala Arg Arg Asn Gln Glu  
20 25 30

Arg Ala Leu Arg Thr Val Trp Ser Ser Gly Asp Asp Lys Glu Gln Leu  
35 40 45

Val Lys Asn Thr Tyr Val Leu  
50 55

<210> 70  
<211> 213  
<212> PRT  
<213> Homo sapiens

<400> 70

Ala Asp Arg Glu Arg Ser Ile His Asp Phe Cys Leu Val Ser Lys Val  
1 5 10 15

Val Gly Arg Cys Arg Ala Ser Met Pro Arg Trp Trp Tyr Asn Val Thr  
20 25 30

Asp Gly Ser Cys Gln Leu Phe Val Tyr Gly Gly Cys Asp Gly Asn Ser  
35 40 45

Asn Asn Tyr Leu Thr Lys Glu Glu Cys Leu Lys Lys Cys Ala Thr Val  
50 55 60

Thr Glu Asn Ala Thr Gly Asp Leu Ala Thr Ser Arg Asn Ala Ala Asp  
65 70 75 80

Ser Ser Val Pro Ser Ala Pro Arg Arg Gln Asp Ser Glu Asp His Ser  
85 90 95

Ser Asp Met Phe Asn Tyr Glu Glu Tyr Cys Thr Ala Asn Ala Val Thr  
100 105 110

Gly Pro Cys Arg Ala Ser Phe Pro Arg Trp Tyr Phe Asp Val Glu Arg  
115 120 125

Asn Ser Cys Asn Asn Phe Ile Tyr Gly Gly Cys Arg Gly Asn Lys Asn  
130 135 140

Ser Tyr Arg Ser Glu Glu Ala Cys Met Leu Arg Cys Phe Arg Gln Gln  
145 150 155 160

Glu Asn Pro Pro Leu Pro Leu Gly Ser Lys Val Val Val Leu Ala Gly  
165 170 175

Leu Phe Val Met Val Leu Ile Leu Phe Leu Gly Ala Ser Met Val Tyr  
180 185 190

Leu Ile Arg Val Ala Arg Arg Asn Gln Glu Arg Ala Leu Arg Thr Val  
195 200 205

Trp Ser Phe Gly Asp  
210

<210> 71  
<211> 225  
<212> PRT  
<213> Homo sapiens

<400> 71

Ala Asp Arg Glu Arg Ser Ile His Asp Phe Cys Leu Val Ser Lys Val  
1 5 10 15

Val Gly Arg Cys Arg Ala Ser Met Pro Arg Trp Trp Tyr Asn Val Thr  
20 25 30

Asp Gly Ser Cys Gln Leu Phe Val Tyr Gly Gly Cys Asp Gly Asn Ser  
35 40 45

Asn Asn Tyr Leu Thr Lys Glu Glu Cys Leu Lys Lys Cys Ala Thr Val  
50 55 60

bb Thr Glu Asn Ala Thr Gly Asp Leu Ala Thr Ser Arg Asn Ala Ala Asp  
65 70 75 80

Ser Ser Val Pro Ser Ala Pro Arg Arg Gln Asp Ser Glu Asp His Ser  
85 90 95

Ser Asp Met Phe Asn Tyr Glu Glu Tyr Cys Thr Ala Asn Ala Val Thr  
100 105 110

Gly Pro Cys Arg Ala Ser Phe Pro Arg Trp Tyr Phe Asp Val Glu Arg  
115 120 125

Asn Ser Cys Asn Asn Phe Ile Tyr Gly Gly Cys Arg Gly Asn Lys Asn  
130 135 140

Ser Tyr Arg Ser Glu Glu Ala Cys Met Leu Arg Cys Phe Arg Gln Gln  
145 150 155 160

Glu Asn Pro Pro Leu Pro Leu Gly Ser Lys Val Val Val Leu Ala Gly  
165 170 175

Leu Phe Val Met Val Leu Ile Leu Phe Leu Gly Ala Ser Met Val Tyr  
180 185 190

Leu Ile Arg Val Ala Arg Arg Asn Gln Glu Arg Ala Leu Arg Thr Val  
195 200 205

Trp Ser Ser Gly Asp Asp Lys Glu Gln Leu Val Lys Asn Thr Tyr Val  
210 215 220



Leu  
225

<210> 72  
<211> 19  
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<213> Homo sapiens

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<222> (9)..(9)  
<223> "Xaa" is Ile, Thr, Asn, or Ser.

Bb

<220>  
<221> MISC\_FEATURE  
<222> (11)..(11)  
<223> "Xaa" is Val, Ala, Glu, or Gly.

<220>  
<221> MISC\_FEATURE  
<222> (17)..(17)  
<223> "Xaa" is Ser, Pro, Thr, or Ala.

<220>  
<221> MISC\_FEATURE  
<222> (19)..(19)  
<223> "Xaa" is Tyr, His, Asn, or Asp.

<400> 72

Arg Pro Leu Gln Arg Tyr Val Ser Xaa Ile Xaa Arg Ile Ile Ala Pro  
1 5 10 15

Xaa Thr Xaa

<210> 73  
<211> 108  
<212> PRT  
<213> Homo sapiens

<400> 73

Pro Gly His Gln Gln Glu Cys Ser Gly Phe Leu Cys Pro Lys Ser Pro  
1 5 10 15

Arg Arg Gln Asp Ser Glu Asp His Ser Ser Asp Met Phe Asn Tyr Glu  
20 25 30

Glu Tyr Cys Thr Ala Asn Ala Val Thr Gly Pro Cys Arg Ala Ser Phe  
 35 40 45

Pro Arg Trp Tyr Phe Asp Val Glu Arg Asn Ser Cys Asn Asn Phe Ile  
 50 55 60

Tyr Gly Gly Cys Arg Gly Asn Lys Asn Ser Tyr Arg Ser Glu Glu Ala  
 65 70 75 80

Cys Met Leu Arg Cys Phe Arg Gln Gln Glu Asn Pro Pro Leu Pro Leu  
 85 90 95

B6

Gly Ser Lys Val Val Val Leu Ala Gly Ala Val Ser  
 100 105

<210> 74  
 <211> 31  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> MISC\_FEATURE  
 <222> (25)..(25)  
 <223> "Xaa" is Asp or Glu.

<400> 74

Ser Phe Ser Trp Gly Ala Ser Met Val Leu Leu Ile Pro Gly Gly Lys  
 1 5 10 15

Glu Glu Pro Gly Ala Cys Pro Ala Xaa Arg Leu Glu Leu Arg Arg  
 20 25 30

<210> 75  
 <211> 511  
 <212> DNA  
 <213> Artificial Sequence

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 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (510)..(510)  
 <223> "n" is any nucleotide.

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 ccacgggtga cctggccacc agcaggaatg cagcggattc ctctgtccca agtgctccca 120  
 gaaggcagga ttctgaagac cactccagcg atatgttcaa ctatgaagaa tactgcaccg 180  
 ccaacgcagt cactgggcct tgccgtgcat ccttcccacg ctggtacttt gacgtggaga 240  
 ggaactcctg caataacttc atctatggag gctgccgggg caataagaac agctaccgct 300  
 ctgaggaggc ctgcatgctc cgctgcttcc gccagcagga gaatcctccc ctgccccttg 360  
 gctcaaaggt ggtggttctg gccggggctg tttcgtgatg gtgttgatcc ttttcctggg 420  
 gagcntccat ggtcttactg attccgggtg gcaaggagga accaggagcg tgccctgcgg 480  
 ancgtctgga gcttcggaga tgacaagggn t 511

<210> 76  
 <211> 31  
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<220>  
 <223> Amino acids 184-214 of the translation of the consensus DNA sequence in Fig. 3.

<220>  
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 <222> (25)..(25)  
 <223> "Xaa" is Asp or Glu.

<400> 76

Ser Phe Ser Trp Gly Ala Ser Met Val Leu Leu Ile Pro Gly Gly Lys  
 1 5 10 15

Glu Glu Pro Gly Ala Cys Pro Ala Xaa Arg Leu Glu Leu Arg Arg  
 20 25 30

<210> 77  
 <211> 312  
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<220>  
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 <223> "n" is any nucleotide.

B6

<220>  
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 <223> "n" is any nucleotide.

<220>  
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 <223> "n" is any nucleotide.

<400> 77  
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 gtcgcaggcg gcgagggcgc gaggtaggag cagacccagg catcgcgcg cgagaagncg 120  
 ggcggtcccca cactgaaggt ccggaaggc gacttccggg ggctttggca cctggcggac 180  
 cctcccggag cgtcggcacc tgaacgcgag gcgctccatt gcgctgcgt ntgaggggct 240  
 tcccgcacct gatcgcgaga cccaacggc tgggtggcgt gcctgcgcgt ctcggtgag 300  
 ctggncatgt cg 312

<210> 78  
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 <212> DNA  
 <213> Homo sapiens

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<223> "n" is any nucleotide.

<220>

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<222> (123)..(123)

<223> "n" is any nucleotide.

<220>

<221> misc\_feature

<222> (321)..(321)

<223> "n" is any nucleotide.

<400> 78

gcgacctccg cgcgttgagg ggtgtagcgc ggctctgaac gcgtgcaggg ccgttgagtg 60

tcgcaggcgg cgagggcgcg agtgaggagc agaccagggc atcgcgcgcc gagaagncgg 120

gcntccccac actgaaggtc cggaagggcg acttccgggg gctttggcac ctggcggacc 180

ctcccggagc gtggcacctg aacgcgaggg gctccattgc gcgtgcgttt gaggggcttc 240

ccgcacctga tcgcgagacc ccaacggctg gtggcgctgc ctgcgcgtct cggctgagct 300

ggccatggcg cactgtgcgg ngctgaggcg 330

<210> 79

<211> 283

<212> DNA

<213> Homo sapiens

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<220>

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<222> (11)..(11)

<223> "n" is any nucleotide.

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 <223> "n" is any nucleotide.

<220>  
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 <223> "n" is any nucleotide.

B6

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 aaggccgggc gtccccacac tgaaggtccg gaaaggcgac ttccgggggc tttggcacct 120  
 ggcggaccct cccggagcgt cggcacctga acgcgaggcg ctccattgcg cgtgcgtttg 180  
 aggggcttcc cgcacctgat cgcgagaccc caacggctgg tngcgtcgct ncgcgtctcg 240  
 gctgagcttg gccatggcgc antgttnccg gctnaggcgg acg 283

<210> 80  
 <211> 423  
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 <223> "n" is any nucleotide.

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<222> (268)..(268)

<223> "n" is any nucleotide.

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<222> (309)..(309)

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<222> (317)..(317)

<223> "n" is any nucleotide.

<220>

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<222> (332)..(332)

<223> "n" is any nucleotide.

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<223> "n" is any nucleotide.

<400> 80

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cgcaggcggc agggcngagt gaggagcaga cccaggcatc gcgcgccgag aagncgggcg 120

tccccacact gaagggtccg aaaggcgact tccgggggct ttggcacctg gcggacgtcc 180

cggagcnggc acctgaacgc gaggcgctcc attgcgcgtg cgtttgaggg gcttcccgca 240

cctgatcgcg agaccccaac ggctggtngc gtcgctggcg cgttctcggc tgagctggcc 300

atggcgcant gttgcngct gaggcggacc gncgtttttc ttcgccttgc tgggattcgc 360

ttgcttcctn tctggggggt cctggggcggc cgaccgagaa cgcagcatcc aagaattttt 420

gcc 423

<210> 81  
<211> 344  
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<213> Homo sapiens

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<223> "n" is any nucleotide.

B6

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<223> "n" is any nucleotide.

<220>  
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<222> (261)..(261)  
<223> "n" is any nucleotide.

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<220>  
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<223> "n" is any nucleotide.

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<220>  
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ggaggagcag acccagcat cgcgcgccga gaagncgggc gtccccacac tgaaggtccg 60  
gaaaggcgac ttccgggggc tttggcacct ggcggaccct cccggagcgt cggcacctga 120  
acgcgaggcg ctccattgcg cgtgcgtntg gaggggcttc ccgcacctga tcgcgagacc 180  
ccaacggctg gtgggctgctg ctgcgcgctct tcggctgagc tgggccatgg cgcanttgtt 240  
gcgggctgag gcggacgcgg ncgttttttc gnccttgctg ggattcggtg ttncctctctn 300  
ggggttctggtt ggnnggccgan cgagaacgca agcattcacg attt 344

B6  
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<220>  
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<222> (233)..(233)  
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gcttcccga cctgatcgcg agaccccaac ggctgggtggc gtcgctgcgc gtctcggtg 120  
agctggccat ggcgcantgt tgcgngctga ggcggcggn cgtttctcgc ctgctgggat 180

cgctgctcct ctctgggggtc ctggcgggccg accgagaacg cagcatccac gantttcttcc 240

tggtgttcga agg 253

<210> 83  
<211> 419  
<212> DNA  
<213> Homo sapiens

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<223> "n" is any nucleotide.

Ble

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<222> (292)..(292)  
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<222> (313)..(315)  
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tgaggagcag acccagggcat cgcgcgccga gaagncgggc gtccccacac tgaaggtccg 120

gaaaggcgac ttccgggggc ttggcacct ggcggaccct cccggagcgt cggcacctga 180

acgcgaggcg ctccattgcy cgtgcgtttg aggggcttcc cgcacctgat cgcgagaccc 240

caacggctgg tggcgctgcc tgcgcgtctc ggctgagctg gccatggcgc antggtgcgg 300

gcttgaggcg gannngccgt ttctcgctg ctgggatcgc tgctcctctc tggggctctg 360

gcggccgacc gagaacgcag catccacgac ttctgcctgg tgcgaaggt ggtgggcag 419

<210> 84  
<211> 477  
<212> DNA  
<213> Homo sapiens

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36  
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B6

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<220>  
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<223> "n" is any nucleotide.

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agaccaggc atcgcgccc gagaagncgg gcgtcccccac actgaaggtc cggaaaggcg	60
acttccgggg gctttggcac ctggcggacc ctcccggagc gtcggcacct gaacgcgagg	120
cctccattgc cgtgcgttng aggggcttcc cggaacttga tcgcgagacc ccaacggctg	180
gtggcgctgc tgcgcgtcct cggctgagct ggccatggcg cantggtgcc gngctgaggg	240
cggagggccg gtttctcgcc ttgctgggat cgctgctcct ctctggggtc ctggcggccg	300
ancgaagaan gcagcaatcc angaattnct gcctggtgtt cgaaagttgg tgggcanatt	360
ccggggcctt catgnctaag gttggttggt anaatgtnaa ttaangattc ttgcaactgt	420
ttgtgtnatt ggggctntta aacggaaana caataatnac ctgaccaaag aagnaatt	477

<210> 85  
 <211> 393  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (361)..(361)  
 <223> "n" is any nucleotide.

<220>  
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 <222> (367)..(367)  
 <223> "n" is any nucleotide.

<220>  
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 <223> "n" is any nucleotide.

<220>  
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<400> 85	
ggccgggtcg tttctcgctt ggctgggata gctgctcttc tctggggctc tggccggccg	60
accgagaacg cagcatccac gacttctgcc tgggtgctgaa ggtggtgggc agattccggg	120
cctccatgcc taggtggtgg tacaatgtca ctgacggata ctgccagctg tttgtgtatg	180
ggggctgtga cggaaacagc aataattacc tgaccaagga ggagtgcctc aagaaatgtg	240
ccactgtcac agagaatgcc acgggtgacc tggccaccag caggaatgca gcggattcct	300

ctgtcccaag tgctcccaga aggcaggatt cttgaagacc acttcagcga tatgtttcaa 360  
 ntattgnaag aataattgca ccgnaacgn att 393

<210> 86  
 <211> 428  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (3)..(3)  
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<220>  
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B6

<220>  
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<220>  
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 <222> (48)..(48)  
 <223> "n" is any nucleotide.

<220>  
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 <222> (425)..(425)  
 <223> "n" is any nucleotide.

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 agaacgcagc atccacgact tctgcctggt gtcgaagggt gtgggcagat gccgggcctc 120  
 catgcctagg tgggtgtaca atgtcactga cggatcctgc cagctgtttg tgtatggggg 180  
 ctgtgacgga aacagcaata attacctgac caaggaggag tgcctcaaga aatgtgccac 240  
 tgtcacagag aatgccacgg gtgacctggc caccagcagg aatgcagcgg attcctctgt 300  
 cccaagtgt cccagaaggc aggattctga agaccactcc agcgatatgt tcaactatga 360  
 agaatactgg caccgccaac gcattcactg ggctgcgtg catccttccc acgctgggtac 420  
 tttgncgt 428

<210> 87  
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 <212> DNA  
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 <223> "n" is any nucleotide.

<220>  
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 <223> "n" is any nucleotide.

<400> 87  
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 cttctgcctg gtgtcgaagg tgggtgggcag atgccggggc tccatgccta ggtggtggtgta 120  
 caatgtcact gacggatcct gccagctggt tgtgtatggg ggctgtgacg gaaacagcaa 180  
 taattacctg accaaggagg agtgcctcaa gaaatgtgcc actgtcacag agaatgccac 240  
 gggtgacctg gccaccagca ggaatgcagc ggattcctct gtcccaagtg ctcccagaag 300  
 gcaggattct gaagaccact ccagcgatat gttcaactat gaagaatact gcaccgccaa 360  
 cgcagtcact ggggccttgc gtggaatcct ttcccacgct ggnaatttng acgttgagaa 420  
 ggaac 425

<210> 88  
 <211> 343  
 <212> DNA  
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 <223> "n" is any nucleotide.

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 <223> "n" is any nucleotide.

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 <222> (211)..(211)  
 <223> "n" is any nucleotide.

<220>  
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 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (245)..(245)  
 <223> "n" is any nucleotide.

B6

<220>  
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 <222> (309)..(309)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (318)..(318)  
 <223> "n" is any nucleotide.

<400> 88  
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 tnccactgtc acagagaatg ccacgggtga cctggccacc agcaggaatg cagcggattc 120  
 ctctgtccca agtgctccca gaaggcagga ttctgaagac cactccagcg atatgttcaa 180  
 ctatgaagaa tactgcaccg ccaacgcagt nactggggcc ttgcgtggca tnccttccca 240  
 cgctngtact ttgacgtgga gaggaactcc tggcaataac ttcattctatg gaggcttgcc 300  
 ggggcaatna agaacagntt accgctcttt aggaggcctg cat 343

<210> 89  
 <211> 510  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (424)..(424)  
 <223> "n" is any nucleotide.



<220>  
 <221> misc\_feature  
 <222> (481)..(481)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (509)..(509)  
 <223> "n" is any nucleotide.

<400> 89  
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 ccacgggtga cctggccacc agcaggaatg cagcggattc ctctgtccca agtctcccag 120  
 aaggcaggat tctgaagacc actccagcga tatgttcaac tatgaagaat actgcaccgc 180  
 caacgcagtc actgggcctt gccgtgcatc cttcccacgc tggactttg acgtggagag 240  
 gaactcctgc aataacttca tctatggagg ctgccggggc aataagaaca gctaccgctc 300  
 tgaggaggcc tgcattgtcc gctgcttccg ccagcaggag aatcctcccc tgccccttgg 360  
 ctcaaagggtg gtggttcttg cggggctgtt ttcgtgatgg tgttgatcct tttcctgggg 420  
 agcntccatg gtcttactga ttccgggtgg caaggaggaa ccaggagcgt gccctgcgga 480  
 ncgtctggag cttcggagat gacaagggnt 510

<210> 90  
 <211> 293  
 <212> DNA  
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<220>  
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 <223> "n" is any nucleotide.

<400> 90  
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 tgccccttgg ctcaaagggtg gtggttcttg cggggctgtt cgtgatgggtg ttgatcctct 120  
 tcttggggag cctccatggt ctacctgac cgggtggcac ggagggaacc agggagcgtg 180  
 ccctgcgcac cgtctgggag ctccggagat gacaaggagg cagctgggtg aagaacacat 240  
 atgttctctg tgaccgncct gttcgccaag aggattgggg gaaggagggg gga 293

<210> 91  
 <211> 282

<212> DNA  
<213> Homo sapiens

<220>  
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<222> (19)..(19)  
<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
<222> (147)..(147)  
<223> "n" is any nucleotide.

Bl6  
<400> 91  
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gggctgttcg tgatggtgtt gatccctcct tcccgggagc ctcccatggt cctaccctga 120  
tccgggtggc acggaggaac ccaggancgt gccctgcgca ccgtctggag ctccggagat 180  
gacaaggagc agctggtgaa gaacacatat gtcctgtgac cgccctgtcg ccaagaggac 240  
tggggaaggg aggggagact atgtgtgagc tttttttaaa ta 282

<210> 92  
<211> 390  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
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<220>  
<221> misc\_feature  
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<220>  
<221> misc\_feature  
<222> (118)..(118)  
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<220>  
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<220>

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 <223> "n" is any nucleotide.

<220>  
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 <222> (259)..(259)  
 <223> "n" is any nucleotide.

<220>  
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 <222> (267)..(267)  
 <223> "n" is any nucleotide.

<220>  
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 <222> (324)..(324)  
 <223> "n" is any nucleotide.

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 <222> (333)..(333)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (344)..(344)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (387)..(387)  
 <223> "n" is any nucleotide.

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 gctctgagga ggccctgcgtg ctccgctgct tccgctgtgt gttctcttcc aggccagcag 120  
 gagaatcctc ccctgcccct tggctcaaag gtggtggttc tggcggggct gttcgtgatg 180  
 gtgttgatcc tcttctctggg agcctccatg gtntacctga tccgggtngc acggaggaac 240  
 cagggagcgt gccctgcgna ccgtctngga gctccggaga tgacaaggag cagctggtga 300  
 agaacacata tgtcctgtga ccgncctggt cgncagagg actnggggaa aggggagggg 360  
 agattatgtg ttgagttttt tttaaantag 390

<210> 93  
<211> 406  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (306)..(306)  
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<220>  
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<222> (328)..(328)  
<223> "n" is any nucleotide.

36  
<220>  
<221> misc\_feature  
<222> (342)..(342)  
<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
<222> (365)..(365)  
<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
<222> (370)..(370)  
<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
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<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
<222> (382)..(382)  
<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
<222> (402)..(402)  
<223> "n" is any nucleotide.

<400> 93  
gattcggaac gaggagccgg ggcaataaga acagctaccg ctctgaggag gcctgcatgc 60  
tccgctgctt ccgccagcag gagaatcctc ccctgcccct tggctcaaag gtggtggttc 120

tggcggggct gttcgtgatg gtgttgatcc tcttcctggg agcctccatg gtctacctga 180  
 tccgggtggc acggaggaac cagggagcgt gccctgcgca ccgtctggga gctccggaga 240  
 tgacaaggga gcagctggtg aagaacacat atgttcctgt tgaccgccct gttcgccaag 300  
 agggantggg ggaaggggag ggggaganta ttgttggtga gntttttttt aaaattagga 360  
 ggggnttgan ttcgggnttt tnagttgatc catttagggg gntgag 406

<210> 94  
 <211> 360  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (1)..(1)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (142)..(142)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (339)..(339)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (347)..(347)  
 <223> "n" is any nucleotide.

<400> 94  
 nggccttgca gtgctccgct gttccgcca gcaggagaat cctcccctgc cccttggtc 60  
 aaagggtggtg gttctggcgg ggctgttcgt gatggtgttg atcctcttcc tgggagcctc 120  
 catggtctac ctgatccggg tngcacggag gaaccaggag cgtgccctgc gcaccgtctg 180  
 gagctccgga gatgacaagg agcagctggt gaagaacaca tatgtcctgt gaccgccctg 240  
 tcgccaagag gactggggaa gggaggggag actatgtgtg agcttttttt aaatagaggg 300  
 attgactcgg atttgagtga tcattagggc tgaggtctnt ttctctngga ggtaggacga 360

<210> 95  
 <211> 438

<212> DNA  
 <213> Homo sapiens  
 <220>  
 <221> misc\_feature  
 <222> (334)..(334)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (368)..(368)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (376)..(376)  
 <223> "n" is any nucleotide.

B6

<400> 95  
 cggggctgtt cgtgatggtg ttgatcctct tcctgggagc ctccatgggc tacctgatcc 60  
 ggggtggcacg gaggaaccag gacgctgccc tgcgcaccgt ctggagctcc ggagatgaca 120  
 aggagcagct ggtgaagaac acatatgtcc tgtgaccgcc ctgtcgccaa gaggactggg 180  
 gaagggaggg gagactatgt gtgagctttt tttaaataga gggattgact cggatttgag 240  
 tgatcattag ggctgaggtc tgtttctctg ggaggtagga cggctgcttc ctgggtcttg 300  
 gcagggatgg ggtttgcttt gggaaatcct cttnnggagc tcctccttcg catgggcctt 360  
 gcagtctnng cagcancccc cgagtttttt tccttcgctg atccgatttc ttttctcca 420  
 ggtaagaatt tttctttt 438

<210> 96  
 <211> 448  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> misc\_feature  
 <222> (108)..(108)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (261)..(261)  
 <223> "n" is any nucleotide.

<400> 96

gggaaccagg agcgtgccct gcgcaccggt ctggagctcc ggagatgaca aggagcagct	60
ggtgaagaac acatatgtcc tgtgaccgcc ctgtcgccaa gaggactngg gaagggaggg	120
gagactatgt gtgagctttt tttaaataga gggattgact cggatttgag tgatcattag	180
ggctgaggtc tgtttctctg ggaggtagga cggctgcttc ctggctctggc agggatgggt	240
ttgctttgga gaatcctcta ngaggctcct cctcgcatgg cctgcagtct ggcagcagcc	300
ccgagttggt tcctcgctga tcgatttctt tcctccaggt agagttttct ttgcttatgt	360
tgaattccat tgccctcttt ctcatcacag aagtgatgtt ggaatcgttt cttttgtttt	420
gtctgattta tgggtttttt ttaagtat	448

<210> 97  
 <211> 331  
 <212> DNA  
 <213> Homo sapiens

<220>  
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 <222> (20)..(20)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (30)..(30)  
 <223> "n" is any nucleotide.

<400> 97	
attagggctg aggtctgttn ctctgggagn taggacggct gccttcctgg tctggcaggg	60
atggggtttgc tttggaaatc ctctaggagg ctctcctcgc catggcctgc agttctgcag	120
cagccccgag ttgtttcttc gctgatcgat ttctttcttc caggtagagt tttctttgct	180
tatgttgaat tccattgcct cttttctcat cacagaagtg atgttggaat cgtttctttt	240
gtttgtctga tttatgggtt ttttaagtat aaacaaaagt tttttattag cattctgaaa	300
gaaggaaagt aaaatgtaca agtttaataa a	331

<210> 98  
 <211> 373  
 <212> DNA  
 <213> Homo sapiens

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 <222> (45)..(45)  
 <223> "n" is any nucleotide.

<220>  
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 <222> (102)..(102)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (105)..(105)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (159)..(159)  
 <223> "n" is any nucleotide.

B6

<220>  
 <221> misc\_feature  
 <222> (174)..(174)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (213)..(213)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (337)..(337)  
 <223> "n" is any nucleotide.

<400> 98  
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 gctgctcccc tggctctggca gggatggggtt tgctttggaa anccnctagg aggtcctcc 120  
 tcgcatggcc tgcagtctgg cagcagcccc gagttgttnc ctcgctgac gatntctttc 180  
 cccaggtag agttttcttt gcttatgttg aantccattg cctcttttct catcacagaa 240  
 gtgatgttgg aatcgtttct tttgtttgtc tgatttatgg tttttttaag tataaacaaa 300  
 agttttttat tagcattctg aaagaaggaa agtaaatgt acaagtttaa taaaaagggg 360  
 ccttccccctt taa 373

<210> 99  
 <211> 380  
 <212> DNA



<213> Homo sapiens

<400> 99

gattgactcg gatttggagt gatcattagg gctgaggtct gtttctctgg gaggtaggac 60  
ggctgcttcc tggctctggca gggatgggtt tgctttggaa atcctctagg aggctcctcc 120  
ttcgcatggc ctgcagtctg gcagcagccc cgagttgttt cctcgctgat cgatttcttt 180  
cctccaggta gagttttctt tgcttatgtt gaattccatt gcctcttttc tcatcacaga 240  
agtgatgttg gaatcgtttc ttttgtttgt ctgatttatg gtttttttaa gtataaacia 300  
aagtttttta ttagcattct gaaagaagga aagtaaatg tacaagtta ataaaaagg 360  
gccttcccct ttagaataaa 380

<210> 100

<211> 320

<212> DNA

<213> Homo sapiens

<220>

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<222> (304)..(304)

<223> "n" is any nucleotide.

<220>

<221> misc\_feature

<222> (309)..(309)

<223> "n" is any nucleotide.

<400> 100

tctggcaggg atgggtttgc tttggaaatc ctctaggagg ctctcctcg catggcctgc 60  
agtctggcag cagcccgagt tgtttcctcg ctgatcgatt tctttcctcc aggtagagtt 120  
ttctttgctt atgttgaatt ccattgcctc ttttctcatc acagaagtga tgttggaatc 180  
gtttcttttg tttgtctgat ttatggtttt ttttaagtata aacaaaagtt ttttattagc 240  
attctgaaag aaggaaagta aaatgtacaa gtttaataaa aaggggcctt cccctttagg 300  
aatnaaaaana aaaaagggtg 320

<210> 101

<211> 397

<212> DNA

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (24)..(24)

<223> "n" is any nucleotide.

<400> 101  
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ggctgcttca tggctctggca gggatgggtt tgctttggaa atcctctagg aggcctctcc 120  
tcgcatggcc tgcagtctgc agcagccccg agttgtttcc tcgctgatcg atttctttcc 180  
tccaggtaga gttttctttg cttatgttga attccattgc ctcttttctc atcacagaag 240  
tgatgttgga atcgtttctt ttgtttgtct gatttatggg ttttttaagt ataaacaaaa 300  
gtttttttatt agcattctga aagaaggaaa gtaaaatgta caagtttaat aaaaaggggc 360  
cttccccctt agaataaatt tcagcatgtg ctttcaa 397

Ble  
<210> 102  
<211> 289  
<212> DNA  
<213> Homo sapiens

<220>  
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<222> (61)..(61)  
<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
<222> (74)..(74)  
<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
<222> (122)..(122)  
<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
<222> (184)..(184)  
<223> "n" is any nucleotide.

<400> 102  
gaggctctc ctgcatggc ctgcagtctt ggcagcagcc ccgagttggt tcctcgctga 60  
ncgatttctt tccnccaggt agagttttct ttgcttatgt tgaattccat tgcttctttt 120  
cncatcacag aagtgatgtt ggaatcgttt cttttgtttg tctgatttat ggttttttta 180  
agtntaaaca aaagtttttt attagcattc tgaaagaagg aaagtaaaat gtacaagttt 240

aataaaaagg ggcttcccc tttagaataa aaaaaaaaaa aaaaaaaaaa

289

<210> 103  
<211> 311  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (7)..(7)  
<223> "n" is any nucleotide.

B6  
<400> 103  
cttttgnaaa tcctctagga ggctcctcct cgcattggcct gcagtctgca gcagccccga 60  
gttgtttctc cgctgatcgg atttctttcc tccaggtaga gttttctttg cttatgttga 120  
attccattgc ctcttttctc atcacagaag tgatgttgga atcgtttctt ttgtttgtct 180  
gatttatggg ttttttaagt ataaacaaaa gttttttatt agcattctga aagaaggaaa 240  
gtaaaatgta caagttaa ataaaaggggc cttccccttt agaataaatt tcagcatgtg 300  
ctttcaaaaa a 311

<210> 104  
<211> 338  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (32)..(32)  
<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
<222> (67)..(67)  
<223> "n" is any nucleotide.

<220>  
<221> misc\_feature  
<222> (136)..(136)  
<223> "n" is any nucleotide.

<400> 104  
ggctctggcag ggatggggtt gcctttggaa ancctctagg aggtcctcct tcgcatggcc 60  
tcgagtnctg gcagcagacc ccgagttggt tcctcgctga tcgatttctt taccctcagg 120  
tagagtttct ctttgnctta tggtgaattc cattgcctct tttactcatc acagaagtga 180

tggtggaatc gtttcttttg tttgtctgat ttatggtttt ttttaagtata aacaaaagtt 240  
 ttttattagc attctgaaag aaggaaagta aaatgtacaa gtttaataaa aaggggcctt 300  
 cccctttaga ataaaaaaaa aaaaaaaaaa aaaaaaaaa 338

<210> 105  
 <211> 343  
 <212> DNA  
 <213> Homo sapiens  
  
 <220>  
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 <222> (13)..(13)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (19)..(19)  
 <223> "n" is any nucleotide.

<220>  
 <221> misc\_feature  
 <222> (107)..(107)  
 <223> "n" is any nucleotide.

<400> 105  
 ccctgggtcc tgncaaggna tggggtttgc tttggaaatc ctcttaggag gtcctcctc 60  
 gcatggcctg cagtctggca gcagccccga gttgtttcct cgctgancga tttctttcct 120  
 ccaggtagag ttttctttgc ttatgttgaa ttccattgcc tcttttctca tcacagaagt 180  
 gatgttgga tcgtttcttt tgtttgtctg atttatggtt tttttaagta taaacaaaag 240  
 ttttttatta gcattctgaa agaaggaaag taaaatgtac aagtttaata aaaaggggcc 300  
 ttccccttta gaataaaaaa aaaaaaaaaa aaaaaaaaaa aaa 343

<210> 106  
 <211> 4  
 <212> PRT  
 <213> Homo sapiens

<400> 106

Leu Gly Ser Lys  
 1